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| APPLICATION NO. | FILED DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|----------------------|---------------------|------------------|
| 09/831,419      | 08/13/2001 | Yura Hirofumi        | 33550               | 4225             |

116 7590 10/02/2002  
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CLEVELAND, OH 44114-1484

|                    |
|--------------------|
| EXAMINER           |
| WHITE, EVERETT NMN |

|          |              |
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| ART UNIT | PAPER NUMBER |
| 1623     | 5            |

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

|   |  |
|---|--|
| <p>Application No.</p> <p>09/831,419</p> <p>Examiner</p> <p>EVERETT WHITE</p> | <p>Applicant(s)</p> <p>HIROFUMI ET AL.</p> <p>Art Unit</p> <p>1623</p> |
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) 5-12 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

### Attachment(s)

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3)<input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s)</li> </ol> | <ol style="list-style-type: none"> <li>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)</li> <li>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6)<input type="checkbox"/> Other</li> </ol> |
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## DETAILED ACTION

### ***Claim Objections***

1. Claims 5-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the Claims 5-12 not been further treated on the merits.
  
2. Claim 1 is objected to because of the following informalities: The term "glucosamin" at lines 4 and 6 of Claim 1 should be changed to --glucosamine--. The term "acetylglucosamin" at line 6 of Claim 1 should be changed to --acetylglucosamine--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

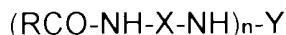
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Noevir (Japanese Patent No. 10182332).

5. The Noevir JP patent discloses an amphipathic chitosan derivative that comprises introducing an N-acylaminosaccharide to the amine group of the chitosan, which anticipates Claim 1 of the instant application when a functional chitosan derivative is formed by incorporating a carbohydrate having an amphipathic group to at least a portion of the 2-position amino groups in the glucosamine units. See the formula



is at least 1 which anticipates the description of the functional chitosan derivative set forth in instant Claim 1.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(a) as being anticipated by Clapper et al (U.S. Patent No. 5,512,474).

The Clapper et al patent discloses a positively-charged molecule that is bound to the surface of a cell culture support of a bioreactor to improve cell attachment and stabilized cell growth. See the abstract of the Clapper et al patent whereby chitosan is a preferred positively charged molecule. See column 9, 1<sup>st</sup> paragraph whereby Clapper et al discloses that the positively charged molecule, which may be chitosan, is covalently linked to the surface through a linking group, whereby the linking group is a residue of a latent reactive group. At lines 33-38, Clapper et al discloses that the latent reactive group may be selected as a sulfonyl azide. See the table in column 10, which shows that the sulfonyl azide forms a sulfonamide group when the linkage is carried out. The linking of chitosan to a sulfonyl azide group in the Clapper et al patent anticipates the claimed functional chitosan derivative when a photo-reactive functional group is incorporated with chitosan. See page 10, line 16 of the instant specification wherein sulfonylazide is recited as a photo-reactive functional group.

### ***Summary***

7. Claims 1-4 are rejected; Claims 5-12 are objected to.

### ***Examiner's Telephone Number, Fax Number, and Other Information***

8. For 24 hour access to patent application information 7 days per week, or for filing applications, please visit our website at [www.uspto.gov](http://www.uspto.gov) and click on the button "Patent Electronic Business Center" for more information.

Any inquiry concerning this communication or earlier communications from the

1623. The examiner can normally be reached on Monday-Friday from 9:00 AM to 4:00 PM.

Art Unit: 1623

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (703) 308-4624. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

*E. White*  
E. White

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James O. Wilson  
Supervisory Primary Examiner  
**Technology Center 1600**